

What is claimed is:

1. An improved process for controlling the oligomerization of an alpha olefin in the presence of a catalyst complex comprising boron trifluoride and an alcohol to form a polyalphaolefin product, the improvement comprising including with the catalyst complex in the reaction zone containing the catalyst complex and the alpha olefin a sufficient amount of a carboxylic acid modifier to significantly increase the amount of trimer and tetramer present in the polyalphaolefin product formed as compared to an oligomerization process in which the carboxylic acid is not present, wherein the carboxylic acid contains from 2 to about 10 carbon atoms.
2. The process of claim 1 wherein the carboxylic acid modifier is acetic acid.
3. The process of claim 1 wherein the acetic acid modifier is present in an amount of from about 0.08 mole percent to about 2.0 mole percent modifier to alpha olefin.
4. The process of claim 3 wherein the acetic acid modifier is present in an amount of from about 0.16 mole percent to about 0.34 mole percent modifier to alpha olefin.
5. The process of claim 1 wherein the temperature in the reaction zone is maintained within the range of from about 30 degrees C to about 150 degrees C.
6. The process of claim 5 wherein the temperature range is from about 40 degrees C to about 60 degrees C.

- 5

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